Name: ……………………………….. Levels of achievement: A

MYP 5 – MATHEMATICS

Number and Algebra Exam – September 2012

45 minutes allowed

* Write your name on this exam
* You will be assessed on Criteria A
* This exam contains 30 questions
* Use of (clean) paper dictionaries is allowed
* Graphical display calculator is NOT allowed

Criteria Descriptors

|  |  |
| --- | --- |
| **Level** | **A: Knowledge and Understanding** |
| 1 – 2 | The student attempts to make deductions when solving simple problems in familiar contexts. |
| 3 – 4 | The students sometimes make appropriate deductions when solving simple and more-complex problems in familiar contexts. |
| 5 – 6 | The student generally makes appropriate deductions when solving challenging problems in a variety of familiar contexts |
| 7 – 8 | The student consistently makes appropriate deductions when solving challenging problems in a variety of contexts including unfamiliar situations. |

Criterion A : Knowledge and Understanding – Test Specific Indicators

|  |  |  |  |
| --- | --- | --- | --- |
| Achievement Level 1-2 | Achievement Level 3-4 | Achievement Level 5-6 | Achievement Level 7-8 |
| Simple problems, familiar contexts  # 1- 7 | Moderate problems, familiar contexts  # 7-14 | Challenging problems, familiar contexts  #15-22 | Challenging problems, unfamiliar contexts  #23- |
| Highest Level achieved:  1 2 | Highest Level achieved:  3 4 | Highest Level achieved:  5 6 | Highest Level achieved:  7 8 |

Level 1-2

1.

Place a tick in the boxes showing all sets to which each number belongs. The first one is done for you.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Natural | Integer | Rational | Irrational | Real |
| 7 | ✓ | ✓ | ✓ |  | ✓ |
| 3.7 |  |  |  |  |  |
| **π** |  |  |  |  |  |
| -3 |  |  |  |  |  |
| 53 |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

2. Write a verbal statement for the meaning of

3. Simplify

(a)

(b)

(c)

4. Simplify giving answers in simplest rational form

5. Factorise fully

6. Expand and simplify

(a)

(b)

Level 3-4

7. Sketch the following number sets on a number line.

8. Simplify

9. Remove the brackets

10. Simplify

11. Simplify giving answers in simplest rational form

(a)

(b)

12. Write without brackets or negative indices

(a)

(b)

13. Evaluate

(a)

(b)

14. Factorise fully

(a)

(b)

(c)

(d)

(e)

(f)

Level 5-6

15. Sketch the following number set on a number line.

16. Express in simplest form with a prime number base

(a)

(b)

17. Simplify

18. Simplify giving answers in simplest rational form

(a)

(b)

19. Write without brackets or negative indices

20. Simplify

21. Factorise fully

(a)

(b)

(c)

(d)

(e)

(f)

22. Expand and simplify

(a)

(b)

level 7-8

23. Express in simplest form with a prime number base

(a)

(b)

24. Simplify giving answers in simplest rational form

25. Simplify

26. solve

(a)

(b)

(c)

Bonus questions\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*

1. Solve the simultaneous equations

(a)

(b)

(c)

\*28. Use an appropriate substitution to solve

\*29. Factorise fully:

**Marking Grid for Criterion A:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Question** | **1-2** | | **3-4** | | **5-6** | | **7-8** | |
| **1** |  |  |  | |  | |  | |
| **2** |  |  |  | |  | |  | |
| **3** |  |  |  | |  | |  | |
| **4** |  |  |  | |  | |  | |
| **5** |  |  |  | |  | |  | |
| **6** |  |  |  | |  | |  | |
| **7** |  |  |  |  |  | |  | |
| **8** |  |  |  |  |  | |  | |
| **9** |  |  |  |  |  | |  | |
| **10** |  |  |  |  |  | |  | |
| **11** |  |  |  |  |  | |  | |
| **12** |  |  |  |  |  | |  | |
| **13** |  |  |  |  |  | |  | |
| **14** |  |  |  |  |  | |  | |
| **15** |  |  |  |  |  |  |  | |
| **16** |  |  |  |  |  |  |  | |
| **17** |  |  |  |  |  |  |  | |
| **18** |  |  |  |  |  |  |  | |
| **19** |  |  |  |  |  |  |  | |
| **20** |  |  |  |  |  |  |  | |
| **21** |  |  |  |  |  |  |  | |
| **22** |  |  |  |  |  |  |  | |
| **23** |  |  |  |  |  |  |  |  |
| **24** |  |  |  |  |  |  |  |  |
| **25** |  |  |  |  |  |  |  |  |
| **26** |  |  |  |  |  |  |  |  |
| **27** |  |  |  |  |  |  |  |  |
| **28** |  |  |  |  |  |  |  |  |
| **29** |  |  |  |  |  |  |  |  |